Developing Data Products Project

Problem Statement

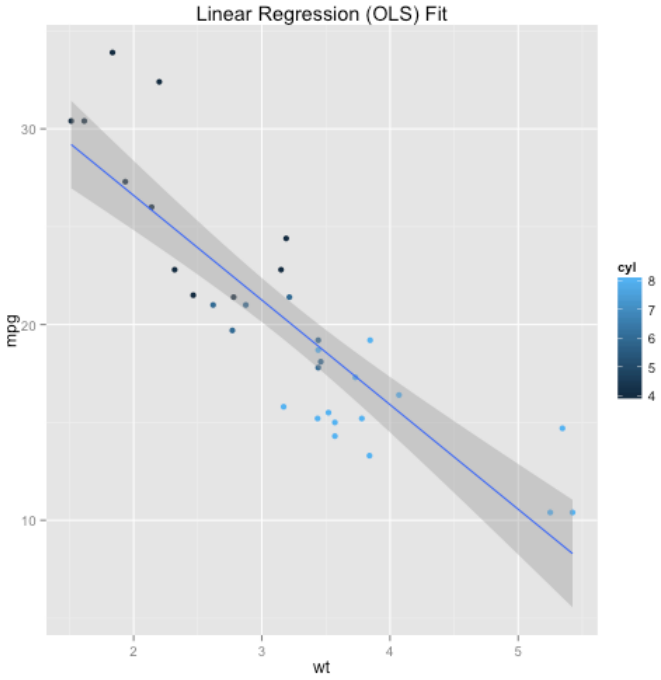
- Write a shiny application with associated supporting documentation. The documentation should be thought of as whatever a user will need to get started using your application.
- Deploy the application on Rstudio's shiny server
- Share the application link by pasting it into the text box below
- Share your server.R and ui.R code on github
- The application must include the following:
    - Some form of input (widget: textbox, radio button, checkbox, …)
    - Some operation on the ui input in sever.R
    - Some reactive output displayed as a result of server calculations
    - You must also include enough documentation so that a novice user could use your application.
    - The documentation should be at the Shiny website itself. Do not post to an external link.

The Shiny application in question is entirely up to you. However, if you're having trouble coming up with ideas, you could start from the simple prediction algorithm done in class and build a new algorithm on one of the R datasets packages. Please make the package simple for the end user, so that they don't need a lot of your prerequisite knowledge to evaluate your application. You should emphasize a simple project given the short time frame.

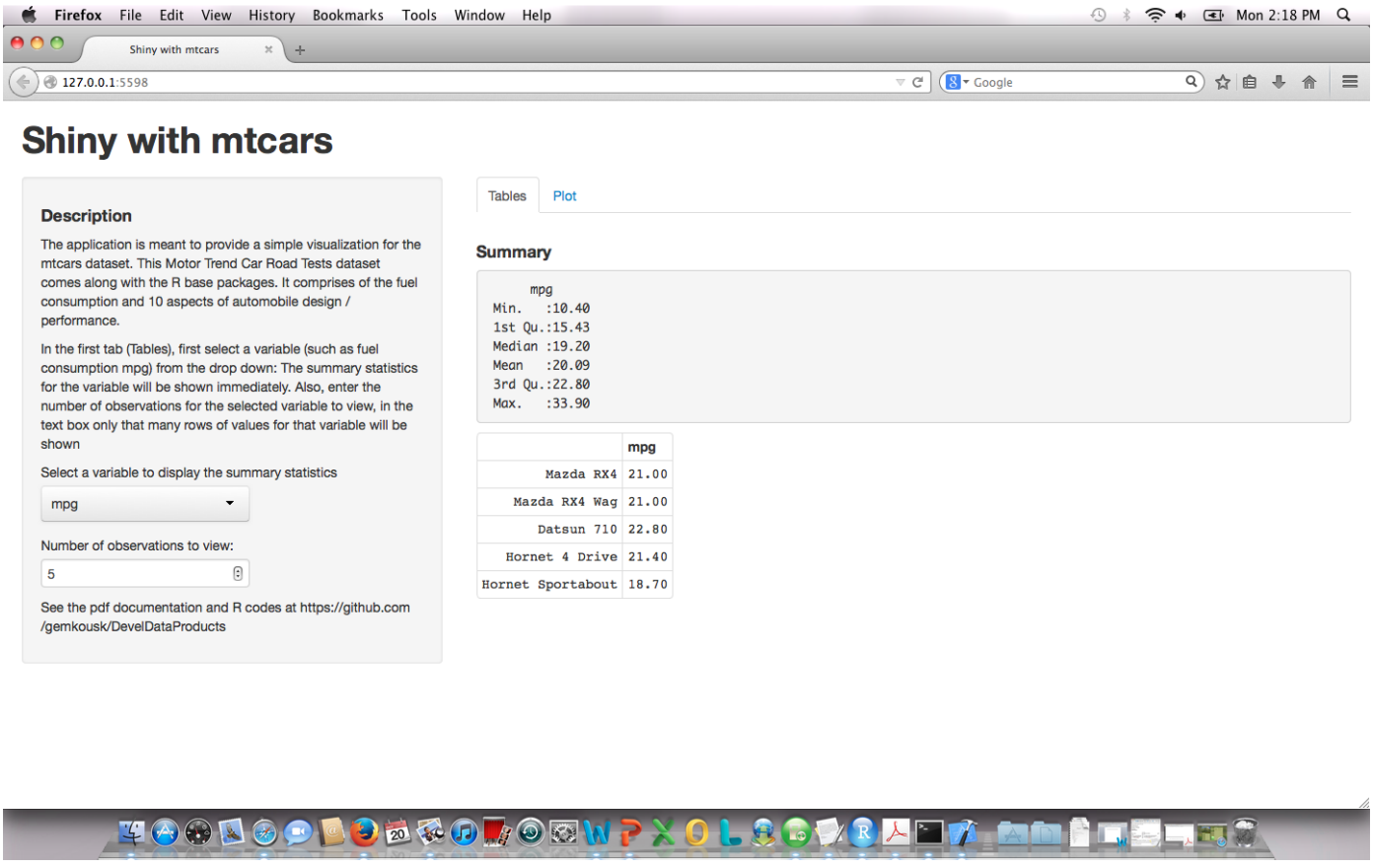
Report

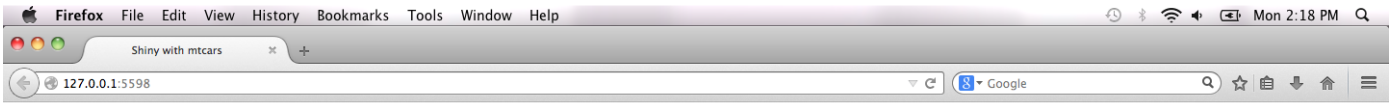
- A simple shiny app is created. The following 2 files are uploaded:
    - server.R
    - ui.R
- The application is meant to provide a simple visualization for the mtcars dataset.
  There are two tabs on the web application.
- The first tab displays some reactive displays of the values of the variable selected from the dropdown. It also displays the summary of the selected variable. The number of data tuples displayed can be changed as well.
- The second tab displays linear regression (OLS) model fits for different independent variables that can be selected from drop down list. Also a 3rd variable value is shown by color coding, which can also be selected from another drop down. Accordinlgy the OLS model changes.
- The below R code snippet / the plot output in the appendix show the figures that are shown reactively.

```
# R code
library(ggplot2)
p <- qplot(wt, mpg, data=mtcars, geom=c("point", "smooth"),
    method="lm", formula=y~x, color=cyl,
    main="Linear Regression (OLS) Fit",
    xlab="wt", ylab="mpg")
p
```


Linear Regression (OLS) Fit
mpg
wt
cyl
8
7
6
5
4
30
20
10
2
3
4
5

Appendix


Firefox File Edit View History Bookmarks Tools Window Help
Mon 2:18 PM
Shiny with mtcars
127.0.0.1:5598
Google
Shiny with mtcars
Description
The application is meant to provide a simple visualization for the mtcars dataset. This Motor Trend Car Road Tests dataset comes along with the R base packages. It comprises of the fuel consumption and 10 aspects of automobile design / performance.
In the first tab (Tables), first select a variable (such as fuel consumption mpg) from the drop down: The summary statistics for the variable will be shown immediately. Also, enter the number of observations for the selected variable to view, in the text box only that many rows of values for that variable will be shown
Select a variable to display the summary statistics
mpg
Number of observations to view:
5
See the pdf documentation and R codes at https://github.com /gemkousk/DevelDataProducts
Tables
Plot
Summary
mpg
Min. :10.40
1st Qu.:15.43
Median :19.20
Mean :20.09
3rd Qu.:22.80
Max. :33.90
mpg
Mazda RX4 21.00
Mazda RX4 Wag 21.00
Datsun 710 22.80
Hornet 4 Drive 21.40
Hornet Sportabout 18.70



Shiny with mtcars

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Select a variable to display the summary statistics

disp

Number of observations to view:

7

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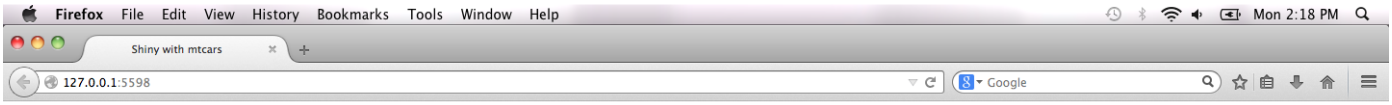
Tables | Plot

Summary

```
     disp
Min.   : 71.1
1st Qu.:120.8
Median :196.3
Mean   :230.7
3rd Qu.:326.0
Max.   :472.0
```

	disp
Mazda RX4	160.00
Mazda RX4 Wag	160.00
Datsun 710	108.00
Hornet 4 Drive	258.00
Hornet Sportabout	360.00
Valiant	225.00
Duster 360	360.00



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The second tab (Plot) is meant to display linear regression (OLS) model fits for the output variable mpg (fuel consumption in miles / gallon). Choose an input (independent) variable (such as weight) from the drop down list. The corresponding straight line will be fit and immediately shown in the plot. Also select another input variable (such as number of cylinders) as color. Different values of this color variable will be shown by color coding.

select the color variable

cyl

Select input variables

wt

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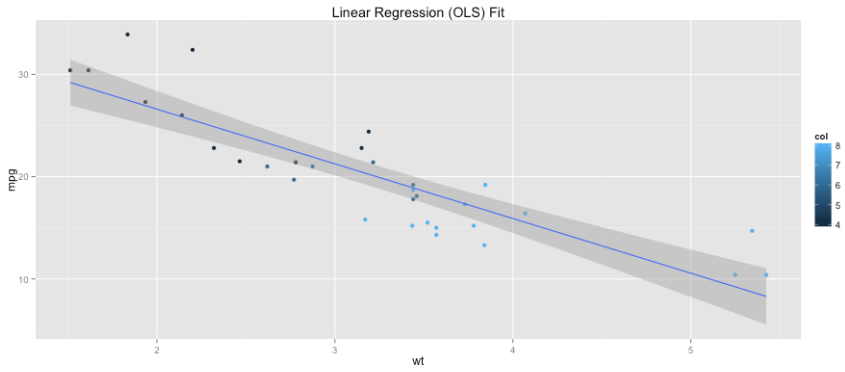
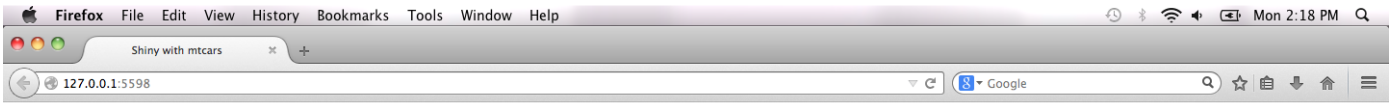
Tables | Plot





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select the color variable

gear

Select input variables

disp

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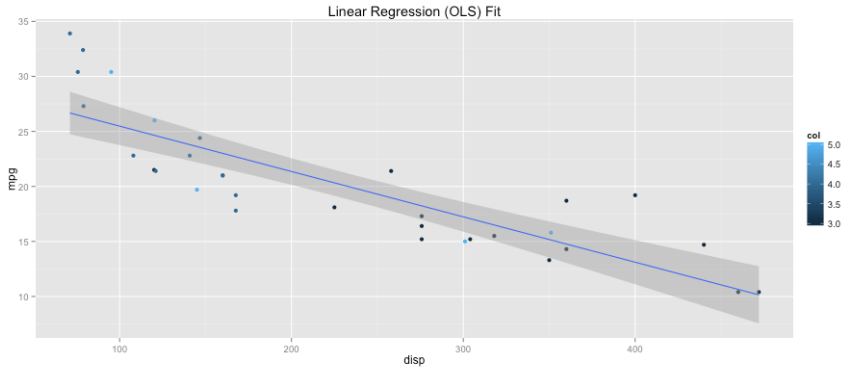
Tables | Plot



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select the color variable

cyl

Select input variables

qsec

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Tables | Plot